

AMENDMENTS TO THE DRAWINGS

The attached Replacement Sheet replaces Figures 9A, 9B, and 9C.

Attachment: Replacement sheet

REMARKS

The pending Office Action addresses claims 1-41, rejecting claims 11-18. Claims 1-10 and 19-41 are withdrawn from consideration.

Amendments to the Drawings

Applicant amends FIG. 9C to include an omitted reference numeral. No new matter is added.

Amendments to the Claims

Applicant amends independent claim 11 to omit that the cant axis is substantially similar to the y axis and to clarify that the angle ψ represents rotation of the secondary wheel assembly about the cant axis in a direction away from the x axis such that the secondary wheel assembly is not aligned with the direction of motion. Support for the amendment can be found throughout the specification, for example, at page 11, lines 1-5. No new matter is added.

Rejections Pursuant to 35 U.S.C. §112

The Examiner rejects claims 11-18 pursuant to 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant respectfully disagrees.

The Examiner asserts that the syntax of lines 12-14 of independent claim 11 renders claim 11 indefinite. Specifically, the Examiner asserts that the terms “substantially similar to the y axis” and “an angle ψ that represents rotation about the cant axis” are unclear. Lines 10-14 of independent claim 11 recite a secondary wheel assembly that is defined by a cant axis and an angle ψ of rotation. Applicant amends claim 11 to omit the limitation that the cant axis is substantially similar to the y axis, as this limitation seems to have unnecessarily complicated the language of the claim. The orientation of the cant axis is clearly described in the specification at paragraphs [0045] – [0047] and shown in FIGS. 9B, 9C, and 10; thus, it is not necessary to specify the orientation in claim 11. Claim 11 is also amended to clarify that the angle ψ represents rotation of the secondary

wheel assembly about the cant axis in a direction away from the x axis such that the secondary wheel assembly is not aligned with the direction of motion. FIG. 9C clearly illustrates that the secondary wheel assembly is angled away from the primary wheel assembly which is aligned with the direction of motion (i.e., along the x axis). Applicant's amendments thereby obviate the basis for this rejection.

The Examiner also continues to assert that it is unclear as to how a pitch angle that "changes with the type and size of user and the type and size of wheeled object is definite." However, as explained in MPEP 2173.05(b), reference to a feature that is variable does not necessarily render a claim indefinite. For example, in *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ2d 1081 (Fed. Cir. 1986), the court concluded that a claim limitation specifying that a certain part of a pediatric wheelchair be "so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats" was held to be definite. In reaching this conclusion, the court reasoned:

The claims were intended to cover the use of the invention with various types of automobiles. That a particular chair on which the claims read may fit within some automobiles and not others is of no moment. The phrase "so dimensioned" is as accurate as the subject matter permits, automobiles being of various sizes. *See Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1547, 221 U.S.P.Q. (BNA) 1, 7 (Fed. Cir. 1984). *As long as those of ordinary skill in the art realized that the dimensions could be easily obtained, § 112, 2d para. requires nothing more.* The patent law does not require that all possible lengths corresponding to the spaces in hundreds of different automobiles be listed in the patent, let alone that they be listed in the claims.

Id. at 1576. [Emphasis added]. As with the pediatric wheelchair, the secondary wheel assembly of the claimed invention is intended to be used with various types of wheeled objects. Moreover, the pitch angle can be simply determined by one having ordinary skill in the art, as it merely requires the use of a basic trigonometric equation and dimensions that can be easily obtained. Therefore, the term "usual pitch angle," like the term "so dimensioned," is not indefinite and withdrawal of the rejected is respectfully requested.

Claim Rejections Pursuant to 35 U.S.C. §103

The Examiner rejects claims 11-18 as being obvious over U.S. Patent No. 7,000,930 to Smith ("Smith") in view of U.S. Patent No. 5,826,895 to Bradfield ("Bradfield"). The Examiner asserts that Smith teaches the claimed invention except a secondary wheel assembly that is rotated about a cant axis by an angle ψ that is not equal to zero. The Examiner relies on Bradfield to teach this feature arguing that it would have been obvious to modify the wheel assembly of Smith in view of Bradfield to decrease "the turning radius when maneuvering the wheeled object." Applicant respectfully disagrees.

As an initial matter, Smith fails to teach or even suggest a passively stabilized wheeled object having an object body, at least one primary wheel assembly, and at least one *secondary wheel assembly* defined by a cant axis *that is adapted to restore the angle θ between the z and z_1 axes to zero if the object tips*, as required by independent claim 11. Smith discloses a tandem-wheeling riding device (10) that includes first and second riding wheel assemblies (16, 18) that are secured to a bottom surface (20) of a platform (12) for supporting a rider and at least two outrigger wheel assemblies (30a-30d) that are coupled to the platform (12) and biased toward the riding surface. The Examiner asserts that the outrigger wheel assemblies (30a-30d) taught by Smith are equivalent to the secondary wheel assembly of claim 11. However, the outrigger wheel assemblies (30a-30d) do not act to *restore an angle between two axes to zero* (i.e., return the riding device to a balanced position). As explained at col. 3, line 60 to col. 4, line 6 and col. 4, lines 30-39 of Smith, the outrigger wheel assemblies (30a-30d) merely provide additional stability to allow for *aggressive turning agility*. Smith states that:

...due to the redistribution of the weight of the rider, the outrigger wheel assemblies 30a, 30b disposed upon the lateral edge 33a of the platform 12 engage the riding surface 44 to provide stability to the platform 12. ... Because the outrigger wheel assemblies 30a-30d are biased by torsion springs 42, engagement of the outrigger wheel assemblies 30a-30d with the riding surface 44 does not cause an abrupt, jarring impact to the skateboard 10. Rather, the outrigger wheel assemblies 30a-30d provide a smooth resistance to leaning of the platform 12 during a turn.

[Emphasis added]. In other words, the outrigger wheel assemblies (30a-30d) do not restore the

riding device to a balanced position – they merely provide resistance to the platform (12) to prevent the platform (12) from tipping over or scraping the riding surface (44) during deep turns. It is the rider himself that restores the platform to a balanced position by shifting his weight – not the configuration of the outrigger wheel assemblies (30a-30d) about any cant axis, as required by independent claim 11. In fact, it would be impossible for the outrigger wheels to be adapted to return the riding device to a balanced position because such a configuration would prohibit aggressive turning, as the platform (12) must remain in the tipped or unbalanced position throughout the duration of a turn.

Bradfield does not remedy the deficiencies of Smith because Bradfield also fails to teach or even suggest a secondary wheel assembly defined by a cant axis that is adapted to restore an angle θ between the z and z_i axes of a wheeled object to zero if the object tips. Bradfield discloses a skateboard that has a plurality of in-line wheels rotatably mounted on a front end of the board and rear wheels disposed on either side of a rear end of the board. Similar to the outrigger wheel assembly taught by Smith, the rear wheels of the Bradfield device merely facilitate *steering* and do not act to restore an angle between an axis of the board and an axis relative to the earth to zero if the board tips. As explained by Bradfield at col. 5, lines 21-27, the wheels (244, 250, 252) are configured such that the skateboard (200) may be *steered* by tilting the board (212). Bradfield goes on to explain that the outer rear wheels (244) provide a greater degree of turn than the intermediate wheels (246), and the central wheel (242) is aligned with the in-line wheel assembly (218) so that the skateboard (200) will travel in a straight line when it is not tilted. In other words, the rear wheels (244, 250, 252) do not act to *restore an angle between two axes to zero* (i.e., return the skateboard to a balanced position) – the rear wheels (244, 250, 252) merely facilitate *steering*. As with the Smith device, it is the skateboard rider himself that restores the stability of the board by shifting his weight – not the configuration of the rear wheel assembly about any cant axis, as required by independent claim 11. In fact, it would be impossible for the rear wheels to be adapted to return the skateboard to a balanced position because such a configuration would prohibit steering the board – the very purpose of the rear wheel assembly.

Accordingly, independent claim 11, as well as claims 12-18 which depend directly or

indirectly therefrom, distinguish over Smith and Bradfield, taken alone or combined, and therefore represent allowable subject matter.

Rejoinder

Applicant requests that claim 19 be rejoined, as it depends from independent claim 11 and is also directed to a wheeled object. Applicant also requests the rejoinder of claims 1-10 and 32-41. The Examiner asserts that claims 1-10 and 32-41 are directed to luggage and claims 11-20 are directed to a wheeled object. However, luggage is one type of wheeled object, and thus the claims are clearly *related*. Since luggage is, indeed, a type of object one could argue that the terms luggage and object can be used interchangeably. In addition, examining claims 11-20 and claims 1-10 and 32-41 together would not be burdensome because all the claims are directed to wheeled objects.

Conclusion

In conclusion, Applicants submit that claims 11-18 are now in condition for allowance, and allowance thereof is respectfully requested. The Examiner is encouraged to telephone the undersigned attorney for Applicants if such communication is deemed to expedite prosecution of this application.

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Respectfully submitted,

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Attachments

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